AUTHOR INDEX TO VOLUME 42

References with (A) are to abstracts of papers presented at meetings of the Physical Society and references with (L) are to Letters to the Editor.

Albertson, Walter. Note on the term system of Ir I —443(L)

Allen, Mildred. Effect of tension on the electrical resistance of single bismuth crystals—848

Allen, P. K. (see Bennett, R. D.)—446(L)

Allis, W. P. (see Morse, Phillip M.)—588(A)

Almy, G. M. and C. D. Hause. Spectrum of potassium hydride—242

Andrew, Victor J. Relative intensities of the $L\alpha_1$, β_1, β_2 and γ_1 lines in tantalum, tungsten, iridium, and platinum—591

Ashley, Muriel F. and F. A. Jenkins. Possibility of the existence of the chlorine isotope Cl^{39}—438(L)

Bainbridge, Kenneth T. Isotopic weight of H^2—1

Barker, E. F. (see Choi, Kyu Nam)—777

——— (see Hardy, J. D.)—279

Barnes, LeRoy L. Emission of positive ions from heated metals—487

——— Temperature variation of the positive ion emission from molybdenum—492

Barnett, S. J. Gyromagnetic ratios for nickel and cobalt—147(L)

Bartlett, J. H., Jr. Structure of atomic nuclei. II—145(L)

——— Errata: Structure of atomic nuclei—737

Barton, Henry A., D. W. Mueller and L. C. Van Atta. Compact high potential electrostatic generator—901(A)

Batho, Harold F. Neutralization and ionization of high-velocity ions of neon, argon and krypton by collision with similar atoms—753

Bear, Richard S. (see Spedding, Frank H.)—58, 76

Beck, Fred J., Jr. and L. W. McKeehan. Monocrystal Barkhausen effects in rotating fields—714

Benade, J. M. Self-recording cosmic-ray electrometer and depth-ionization curve—290

Bennett, Ralph D. (see Stearns, J. C.)—317(L)

——— **J. L. Dunham, E. H. Bramhall, and P. K. Allen.** Intensity of cosmic-ray ionization in Western North America—446(L)

Bhagavantam, S. Raman effect in gases: CO and NO —437(L)

Birge, Raymond T. Value of e/m—736(L)

Bitter, Francis. Some properties of homogeneously distorted cubic ferromagnetic lattices—697

——— Tropism of crystals—731(L)

Boeckner, C. and F. L. Mohler. Scattering of slow electrons by caesium ions—906(A)

Boeker, G. F. (see Wills, A. P.)—687

Bourgin, D. G. Velocity of sound in an absorptive gas—721

Bozorth, Richard M. Theory of the ferromagnetic anisotropy of single crystals—882

Bramhall, E. H. (see Bennett, R. D.)—446(L)

Brasefield, Charles J. Ionization of helium, neon and argon under impact of their own atoms and positive ions—11

Breazeale, William M. (see Slack, Francis G.)—305

Breit, G. Isotope displacement in hyperfine structure—348

Brewer, A. Keith and R. R. Miller. Positive ion current at the cathode in the glow discharge—786

Bridgman, P. W. Effect of homogeneous mechanical stress on the electrical resistance of crystals—858

——— Effect of pressure on the electrical resistance of fifteen metals down to liquid oxygen temperatures—587(A)

Brown, F. W. Atomic wave functions—914(A)

Brown, Weldon G. Absorption spectrum of iodine bromide—355

Broxon, James W. Cosmic-ray ionization as a function of pressure, temperature, and dimensions of the ionization chamber—321

Burroughs, Robert E. and J. E. Ferguson. Use of vacuum tube electrometers for measuring the potentials of high-resistance cells—913(A)

Calbick, C. J. (see Davisson, C. J.)—580(L)

Caldwell, S. Differential analyzer solution for the wave functions of the K-shell—589(A)

Carr, P. H. (see Johnson, O. J.)—912(A)

Child, C. D. Luminosity of sodium flames—146(L)

Choi, Kyu Nam and E. F. Barker. Infrared absorption spectrum of hydrogen cyanide—777

Chylinski, S. Magnetic spectra of secondary electrons from silver—393

——— On the scattering of hard x-rays by solids—153

Colby, M. Y. and Sidon Harris. X-ray reflection from a quartz piezoelectric oscillator in a Bragg spectrograph—733(L)

Collins, George (see Wood, R. W.)—386

Compton, Arthur H. Sea level intensity of cosmic rays in certain localities from 46° south to 68° north latitude—904(A)
Compton, K. T. and E. S. Lamar. Momentum transfer to cathode surfaces by impacting positive ions in a helium arc—588(A)
Coolidge, Albert Sprague. Quantum mechanics treatment of the water molecule—189
Cooper, F. S. (see Kruger, P. Gerald)—910(A)
Cork, J. M. Laue patterns from thick crystals at rest and oscillating piezoelectrically—749
——— (see Witmer, R. B.)—743

Davisson, C. J. and C. J. Calbick. Electron lenses—580(L)
Dempster, A. J. Production of high-velocity protons by repeated accelerations—901(A)
Dennison, D. M. (see Hardy, J. D.)—279
Dershem, Elmer. Direct comparison of photographic and ionization methods of measuring x-ray intensities—908(A)
Ditchburn, R. W. Emission probability for a colliding atom—314(L)
DuBridge, Lee A. Theory of the energy distribution of photoelectrons—905(A)
——— **and W. W. Roehr.** Thermionic and photoelectric work functions of molybdenum—52
Dunham, J. L. (see Bennett, R. D.)—446(L)
Dunnington, Frank G. Determination of e/m for an electron by a new deflection method—734(L)
Duveneck, F. B. (see Webster, D. L.)—141(L)

Ehrenfest, Paul II (see Jauncey, G. E. M.)—907(A)
Erikson, Henry A. Light intensities at different depths in water as determined by means of a quartz spectrograph—910(A)

Farnsworth, H. E. Electron diffraction by a silver film on a gold crystal—588(A)
Feenberg, Eugene. Scattering of slow electrons. Part II—17
Ferguson, J. E. (see Burroughs, Robert E.)—913(A)
——— (see Lark-Horovitz, K.)—907(A)
Fink, George A. Measurement of the piezoelectric deformations of quartz and tourmaline plates by means of a modified optical lever—912(A)
Focken, C. M. Velocities of ions and electrons in pure gases—577(L)
Frank, Henry S. and Foo-Song Lei. Empirical equation of state—893
Fritsche, O. D. (see Wahlin, H. B.)—911(A)

Geib, I. G. and K. Lark-Horovitz. Dynamic reflection of x-rays from ZnS—908(A)
Gerhard, Sherman L. Infrared absorption spectrum and the molecular structure of ozone—622
Goble, A. T. and J. E. Mack. Two vector problem in Pb V and Bi VI—909(A)
Gorter, C. J. Note on the electric field in paramagnetic crystals—437(L)
Granath, L. P. Nuclear spin and magnetic moment of Li^7—44
Green, J. B. and R. A. Loring. Zeeman effect of the spectra of Sb II and Sb III—909(A)
Greene, Ernest W. and John Warren Williams. Variation of dielectric constant with temperature. II. Electric moments of the ethylene halides—119
Gross, E. and J. Khvostikov. Variation of the structure of scattered lines with the frequency of the primary light—579(L)
Grosse, A. v. On the origin of the actinium series of radioactive elements—565
Gruner, J. W. Book review—451
Guillemin, V., Jr. On the possibility of deriving work from statistical fluctuations—589(A)

Hamada, H. (see Okubo, J.)—795
Hancox, Robert Rex. Reflection of metallic atoms from alkali halide crystals—864
Hansen, W. W. (see Webster, D. L.)—141(L)
Hardy, J. D., E. F. Barker and D. M. Dennison. Infrared spectrum of H^2Cl—279
Harkins, William D. Neutron, the element neuton, and a nuclear exclusion principle—914(A)
Harris, Sidon (see Colby, M. Y.)—733(L)
Hartley, Kenneth. Direct measurement of the gravitational effect of the moon—911(A)
Hause, C. D. (see Almy, G. M.)—242
Havens, G. G. Magnetic susceptibilities of some common gases—901(A)
Haworth, L. J. Energy distribution of secondary electrons from molybdenum—906(A)
Heaps, C. W. Effect of strain on magnetostriction and magnetization in nickel—108
Herzfeld, Karl F. Book review—319
Hidnert, Peter and H. S. Krider. Thermal expansion of antimony—911(A)
Hill, E. L. Book review—741
Hoag, J. Barton and Haydn Jones. Permeability of iron at ultra-radio frequencies—571
Hollaender, Alexander (see Williams, John Warren)—379
Hopfield, John J. Argon in the ionization method of measuring cosmic rays and γ-rays—904(A)
——— Improved burner for singing flames. Overtones in vibrating strings—913(A)
Howell, L. G. (see Mott-Smith, L. M.)—314(L)
Hughes, A. L. Angular distribution of electrons scattered in mercury vapor—147(L)
Hukumoto, Y. On the continuous absorption spectrum of alkyl iodides—313(L)

Ingersoll, L. R. and W. R. Winch. Dispersion of the Kerr effect in the near infrared—909(A)
Inglis, D. R. Heisenberg theory of ferromagnetism —442(L)

James, Louis E. (see Poindexter, Franklin E.)—910 (A)
Jauncey, G. E. M. Remarks on the scattering of x-rays by gases and crystals—453
——— (see Williams, P. S.)—907(A)
——— **and Paul Ehrenfest II.** Diffuse scattering of x-rays from a complicated crystal—907(A)
Jen, C. K. Continuous electron affinity spectrum of hydrogen—588(A)
Jenkins, F. A. (see Ashley, Muriel F.)—438(L)
——— **and Andrew McKellar.** Mass ratio of the boron isotopes from the spectrum of BO—464
Johnson, O. J. and P. H. Carr. Some experiments on electrets—912(A)
Johnson, Thomas H. (see Street, J. C.)—142(L)
Jones, Haydn (see Hoag, J. Barton)—571
Jordahl, O. M. Paramagnetic susceptibility of Cu^{++} —901(A)

Kaplan, Joseph. Auroral spectrum—807
——— Luminescence of solid nitrogen—86
——— Products of dissociation in nitrogen—97
Kennedy, Roy J. and Edward M. Thorndike. Experimental establishment of the relativity of time—400
Kenty, Carl. On radiation diffusion and the rapidity of escape of resonance radiation from a gas—823
Khvostikov, J. (see Gross, E.)—579
Kolthoff, I. M. Book reviews—451, 741
Kretschmar, G. G. Determination of e/m by means of photoelectrons excited by x-rays—905(A)
Krider, H. S. (see Hidnert, Peter)—911(A)
Kruger, P. Gerald and F. S. Cooper. Twenty-one foot grazing incidence vacuum spectrograph—910(A)
Kuhn, H. and O. Oldenberg. Errata: Evidence of space quantization of atoms upon impact—312

Lamar, E. S. (see Compton, K. T.)—588(A)
Lang, R. J. and E. H. Vestine. First spark spectrum of antimony—233
Langer, R. M. Book review—738
Laporte, Otto. Approximation of geometric optics as applied to a Dirac electron moving in a magnetic field—340
Lark-Horovitz, K. (see Geib, I. G.)—908(A)
——— (see Yearian, H. J.)—905(A)
——— **and J. E. Ferguson.** Electrical properties of surface layers—907(A)
——— **and E. M. Miller.** Demountable metal x-ray tube—915(A)
Lawrence, Ernest O. Book review —451
———, **M. Stanley Livingston and Milton G. White.** Disintegration of lithium by swiftly-moving protons—150(L)
Lei, Foo-Song (see Frank, Henry S.)—893
Lemaitre, G. and M. S. Vallarta. On Compton's latitude effect of cosmic radiation—914(A)
Libby, W. F. Simple amplifier for Geiger-Müller counters—440(L)
Lippert, T. W. (see Pugh, E. M.)—709
Livingston, M. Stanley. High-speed hydrogen ions—441(L)
——— (see Lawrence, Ernest O.)—150(L)
Locher, Gordon L. Photoelectric quantum counters for visible and ultraviolet light. Part I.—525
Longacre, Andrew. Scattering of lithium ions from a nickel surface—906(A)
Loring, R. A. (see Green, J. B.)—909(A)

Mack, J. E. (see Goble, A. T.)—909(A)
Mahanti, P. C. Band spectra of MgO, CaO and SrO —609
Maring, Karl A. Influence of pressure on the formation of the latent photographic image, particularly its effect on reversal in the region of solarization—911(A)
Matuyama, E. On the lifetime of the metastable $^3P_2$ neon atom—373
Maxwell, Louis R. On the radiation originating from a beam of electrons in mercury vapor and the mean life of the 2^3S_1 state—148(L)
McKeehan, L. W. (see Beck, Fred J., Jr.)—714
McKellar, Andrew (see Jenkins, F. A.)—464
McMillan, Edwin. Deflection of a beam of HCl molecules by a non-homogeneous electric field—905(A)
McPherson, A. I. Radiation from positive ions in argon, neon, helium—903(A)
Miller, E. M. (see Lark-Horovitz, K.)—915(A)
Miller, R. R. (see Brewer, A. Keith)—786
Mohler, F. L. (see Boeckner, C.)—906(A)
Moore, T. W. Behavior of crystalline test bodies in streaming solutions—906(A)
Morse, Philip M. (see Rosen, N.)—210
——— **and W. P. Allis.** Effect of exchange on elastic cross sections—588(A)
Mott-Smith, L. M. and L. G. Howell. Airplane cosmic-ray intensity measurements—314(L)
Mueller, D. W. (see Barton, Henry A.)—901(A)
——— (see Smyth, H. D.)—902(A)
Mulliken, Robert S. On the interpretation of the rotational structure of the CO_2 emission bands—364
Murphy, George M. and Harold C. Urey. Errata: On the relative abundances of the nitrogen and oxygen isotopes—312
Muskat, Morris. Theory of refraction shooting—910(A)

Nedelsky, Leo. Radiation from slow electrons—641
Noll, F. H. Waldemar. X-ray diffraction in ethyl ether near the critical point—336

Oesterle, J. F. (see Wahlin, H. B.)—911(A)
Okubo, J. and H. Hamada. On the nature of active nitrogen—795
Oldenberg, O. (see Kuhn, H.)—312
Olthoff, J. and R. A. Sawyer. Extension of the first spark spectrum of caesium (Cs II)—766
Osterberg, Harold (see Roebuck, J. R.)—912(A)
Overbeck, Wilcox P. (see Stearns, J. C.)—317(L)

Page, Leigh. Momentum relations in crossed fields—101
Patten, C. G. (see Uber, Fred M.)—229
Penney, W. G. Law of force between two He atoms—585(L)
——— (see Schlapp, Robert)—666
Pfund, A. H. Filter for the study of the Raman effect—581(L)
Piekara, A. Dielectric constant and electric polarization of mixtures in the neighborhood of the critical point—448(L)
——— Electric moment of the molecule of nitrobenzene—449(L)
Pielemeier, W. H. Erratum: Supersonic dispersion and absorption in CO_2—436
Pierce, G. W. Some applications of high-frequency sound effects—589(A)
Poindexter, Franklin E. and Louis E. James. High-pressure spectrometer—910(A)
Pool, M. L. and S. J. Simmons. Absorption coefficients in optically excited mercury vapor—909(A)
Pugh, E. M. and T. W. Lippert. Hall e.m.f. and intensity of magnetization—709

Rank, David H. Isotope of hydrogen in the atomic spectrum—446(L)
Reich, Herbert J. Nonthermionic amplifier tube—913(A)
Reichrudel, E. (see Spiwak, G.)—580(L)
Reyerson, L. H. Book review—740
Rieke, Foster F. Anomalous rotational temperature of mercury hydride—587(A)
Roebuck, J. R. and Harold Osterberg. Joule-Thomson effect in helium—912(A)
Roehr, W. W. (see DuBridge, Lee A.)—52
Rosen, N. and Philip M. Morse. On the vibrations of polyatomic molecules—210
Rosenthal, Jenny E. (see Salant, E. O.)—812
Ruark, Arthur (see Western, Forrest)—903(A); 903(A)

Salant, E. O. and Jenny E. Rosenthal. Theory of vibrational isotope effects in polyatomic molecules—812
Saper, Paul G. Rotational analysis of ultraviolet bands of silicon monoxide—498
Sawyer, R. A. (see Olthoff, J.)—766
Schlapp, Robert and William G. Penney. Influence of crystalline fields on the susceptibilities of salts of paramagnetic ions. II. The iron group, especially Ni, Cr and CO—666
Schmid, R. F. Rotational analysis of the first-negative bands of the CO^+ molecule—182
Shaw, A. E. Polarization of collecting electrodes in high vacua—902(A)
Shortley, G. H. (see Ufford, C. W.)—167
Simmons, S. J. (see Pool, M. L.)—909(A)
Sixtus, K. J. and L. Tonks. Propagation of large Barkhausen discontinuities. II—419
Slack, Francis G. and William M. Breazeale. Magneto-optic rotation by condenser discharge—305
Slater, J. C. Analytic atomic wave functions—33
——— Recent developments in the theory of magnetism—589(A)
Smith, Lloyd P. Calculation of the quantum defect for highly excited S states of para- and ortho-helium—176
Smyth, H. D. and D. W. Mueller. Ionization by electron impact in water vapor and sulphur dioxide—902(A)
Spangler, Rose D. Cybotactic condition of ethyl ether in the region of the critical point—907(A)
Spedding, Frank H. and Richard S. Bear. Absorption spectra of the samarium ion in solids. I. Absorption by large single crystals of $SmCl_3 \cdot 6H_2O$—58
——— Absorption spectra of the samarium ion in solids. II. Conglomerate absorption of $SmCl_3 \cdot 6H_2O$ and a partial energy level diagram of the Sm^{+++} ion as it exists in crystalline $SmCl_3 \cdot 6H_2O$—76
Spiwak, G. and E. Reichrudel. On the secondary emission from collectors in neon discharge—580(L)
Sproull, Wayne T. Diffraction of low speed electrons by a tungsten single crystal—904(A)
Stearns, J. C., Wilcox P. Overbeck and Ralph D. Bennett. Solar component of cosmic rays—317(L)
Stehn, J. R. Note on perturbation theory of molecules formed from two $2p$ atoms—582(L)
Stephenson, Reginald J. Relative intensities of the $L\alpha_1$ and $L\beta_2$ lines in the fluorescent x-ray spectrum of uranium—908(A)
Sterne, Theodore E. Vapor pressure constant of methane—556
Stewart, G. W. On the process of liquefaction—907(A)

Street, J. C. and Thomas H. Johnson. Concerning the production of groups of secondaries by the cosmic radiation—142(L)
Strong, John and S. C. Woo. Far infrared spectra of gases—267
Stueckelberg, E. C. G. Theory of continuous absorption of oxygen at 1450A—518
Swann, W. F. G. Methods of acquirement of cosmic-ray energies—914(A)

Thorndike, Edward M. (see Kennedy, Roy J.)—400
Tonks, L. (see Sixtus, K. J.)—419
Tykociner, J. Tykocinski. Oscillations produced by beads of corona discharges—912(A)

Uber, Fred M. and C. G. Patten. Magnitudes of the *L* absorption discontinuities of gold—229
Ufford, C. W. and G. H. Shortley. Atomic eigenfunctions and energies—167
Uhlenbeck, G. E. Book review—738
Urey, Harold C. (see Murphy, George M.)—312

Valasek, Joseph. Book reviews—152
Vallarta, M. S. (see Lemaitre, G.)—914(A)
Van Atta, L. C. (see Barton, Henry A.)—901(A)
Van Dyke, K. S. Temperature variation of viscosity and of the piezoelectric constant of quartz—587(A)
Varney, Robert N. Non-existence of ion mobility spectrum in air—547
Verwiebe, F. L. Radiation excited by canal ray impact—902(A)
Vestine, E. H. (see Lang, R. J.)—233
Vinti, J. P. Dispersion and absorption of helium—632
Vollrath, Richard E. High-voltage direct-current generator—298

Wahlin, H. B., O. D. Fritsche, and J. F. Oesterle. Refractory materials for melting pure metals—911(A)
Watson, William W. Zeeman effect of perturbed terms in the CO angstrom bands—509
Webster, D. L., W. W. Hansen, F. B. Duveneck. Probabilities of *K*-electron ionization of silver by cathode rays—141(L)
Wensel, H. T. Book review—319
Western, Forrest and Arthur Ruark. Actinium branching ratio—903(A)
——— Atomic weights of radioactive substances—903(A)
Wetzel, W. W. Ionization of He by electron impact—902(A)
White, Milton G. (see Lawrence, Ernest O.)—150(L)
Williams, John Warren (see Greene, Ernest W.)—119
——— **and Alexander Hollaender.** Molecular scattering of light from ammonia solutions. The fine structure of a vibrational Raman band—379
Williams, N. H. Modes of vibration of piezoelectric crystals—913(A)
Williams, P. S. and G. E. M. Jauncey. Diffuse scattering of x-rays from an NaF crystal at low temperatures—907(A)
Williams, S. R. Mechanical hardness as measured by magnetostrictive effects—589(A)
Wills, A. P. and G. F. Boeker. Diamagnetism of water at different temperatures—687
Winans, J. Gibson. Origin of the mercury bands at 2480A—800
Winch, W. R. (see Ingersoll, L. R.)—909(A)
Witmer, Enos E. Unitary theory, pure number ratios and the masses of atomic nuclei—316(L)
——— **and J. M. Cork.** Measurement of x-ray emission wave-lengths by means of the ruled grating—743
Woo, S. C. (see Strong, John)—267
Wood, R. W. and George Collins. Raman spectra of a series of normal alcohols and other compounds—386

Yearian, H. J. and K. Lark-Horovitz. Intensity distribution in electron diffraction patterns of ZnO—905(A)

Zabel, R. M. Reflection of atomic beams from sodium chloride crystals—218
Zemansky, M. W. Note on the equivalent absorption coefficient for diffused resonance radiation—843

ANALYTIC SUBJECT INDEX TO VOLUME 42

References marked (A) are to abstracts of papers presented at meetings of the Physical Society, those marked with (L) are to Letters to the Editor.

Absorption of light (see also Spectra, absorption)
Absorption coefficient for diffused radiation, M. W. Zemansky—843
In optically excited Hg, M. L. Pool, S. J. Simmons—909(A)
Intensities at different depths in water, H. A. Erikson—910(A)

Accommodation coefficient
For He positive ions, K. T. Compton, E. S. Lamar—588(A)

Acoustics
Burner for singing flames, overtones in strings, J. J. Hopfield—913(A)
Erratum: Supersonic dispersion and absorption in CO_2, W. H. Pielemeier—436
Velocity of sound in an absorptive gas, D. G. Bourgin—721

Activated gases
Nature of active N, J. Okubo, H. Hamada—795

Affinity
Continuous electron affinity spectrum of H, C. K. Jen—588(A)

Afterglow
Auroral spectrum, J. Kaplan—807
Nature of active N, J. Okubo, H. Hamada—795

Arcs (see Discharge of electricity in gases)

Astrophysics
Gunn's theory of double stars, L. Page—101

Atomic and molecular beams
Deflection of HCl molecules by a non-homogeneous electric field, E. McMillan—905(A)
Radiation excited by canal ray impact, F. L. Verwiebe—902(A)
Reflection from alkali halide crystals, R. R. Hancox—864
Reflection from NaCl crystals, R. M. Zabel—218
Scattering of Li ions from Ni, A. Longacre—906(A)

Atomic form factors
Function of temperature, G. E. M. Jauncey—453

Aurora
Auroral spectrum, J. Kaplan—807
Luminescence of solid N., J. Kaplan—86

Barkhausen effect (see Magnetic properties)

Book reviews
Allen, H. Stanley. Electrons and Waves—451
Chase, C. T. A History of Experimental Physics—152
Debye, P. Molekulstruktur—743
Dirac, P. A. M. Les Principes de la Mécanique Quantique—746
Faraday Society. The Adsorption of Gases by Solids—745
Fleury, Pierre. Étalon Photométriques—319
Gmelin's Hankbuch der anorganischen Chemie, 8 auflage, Heransgegeben von der Deutschen chemischen gesellschaft. Teil A. Lieferung 4—746
Gmelin's Handbuch der anorganischen Chemie, 8 auflage, Heransgegeben von der Deutschen chemischen gesellschaft. Teil B. Lieferung 5—451
Houston, R. A. Vision and Colour Vision—152
Knaggs, I. E. and B. Karlik. Tables of Cubic Crystal Structure of Elements and Compounds—451
Kohlrausch, Friedrich. Kleiner Leitfaden der Praktischen Physik—319
Van Vleck, J. H. The Theory of Electric and Magnetic Susceptibilities—743

Constants, physical
Unitary theory and pure number ratios, E. Witmer—316(L)

Cosmic radiation
Acquirement of energies, W. F. G. Swann—914(A)
Airplane intensity measurements, L. M. Mott-Smith, L. G. Howell—314(L)
A in the ionization method of measuring, J. J. Hopfield—904(A)
Compton's latitude effect, G. Lemaitre, M. S. Vallarta—914(A)
Intensity variation with latitude, A. H. Compton—904(A). R. D. Bennett, J. L. Dunham, E. H. Bramhall, P. K. Allen—446(L)
Ionization as a function of pressure and temperature, J. W. Broxon—321
Production of groups of secondaries, J. C. Street, T. H. Johnson—142(L)
Self-recording electrometer; depth-ionization curve, J. M. Benade—290

Cosmic radiation (continued)
Solar component, J. C. Stearns, W. P. Overbeck, R. D. Bennett—317(L)

Crystals and crystal structure
Crystalline fields and the susceptibilities of salts of Ni, Cr, and Co, R. Schlapp, W. G. Penney—666
Electric field in paramagnetic crystals, C. J. Gorter—437(L)
Ferromagnetic anisotropy of single crystals; theory, R. M. Bozorth—882
Homogeneous mechanical stress and electrical resistance, P. W. Bridgman—858
Reflection of metallic atoms from alkali halide crystals, R. R. Hancox—864
Laue patterns from crystals oscillating piezoelectrically, M. Y. Colby, S. Harris—733(L) J. M. Cork—749
Mono-crystal Barkhausen effects, F. J. Beck, Jr., L. W. McKeehan—714
Piezoelectric deformations of quartz and tourmaline plates, G. A. Fink—912(A)
Tension and electrical resistance of single Bi crystals, M. Allen—848
Tropism of crystals, F. Bitter—731(L)
Vibration of piezoelectric crystals, N. H. Williams—913(A)

Cybotactic state
In ethyl ether, F. H. W. Noll—336
Of ethyl ether in the region of the critical point, R. D. Spangler—907(A)
Process of liquefaction, G. W. Stewart—907(A)

Dielectric constants
Moment of nitrobenzene, A. Piekara—449(L)
Of organic liquid mixtures, A. Piekara—448(L)
Temperature variation of moments of ethylene halides, E. W. Greene, J. W. Williams—119

Diffraction of atoms (see Atomic and molecular beams)

Diffraction of electrons (see Electron diffraction)

Diffusion
Of resonance radiation in gas, C. Kenty—823

Discharge of electricity in gases
Currents carried by electrons, K. T. Compton, E. S. Lamar—588(A)
Diffusion of resonance radiation in a gas, C. Kenty—823
Neutralization and ionization of high-velocity ions by collision, H. F. Batho—753
Positive ion current at cathode, A. K. Brewer, R. R. Miller—786
Secondary emission from collectors in Ne discharge, G. Spiwak, E. Reichrudel—580(L)

Disintegration of nucleus
Of Li by protons, E. O. Lawrence, M. S. Livingston, M. G. White—150(L)

Dissociation
In N, J. Kaplan—97

Efficiency of ionization
K-electron ionization of Ag, D. L. Webster, W. W. Hansen, F. B Duveneck—141(L)

Elasticity
And magnetic properties, F. Bitter—697
Theory of "refraction shooting," M. Muskat—910(A)

Electrets
In wax mixtures and S, O. J. Johnson, P. H. Carr—912(A)

Electrical conductivity and resistance
Of fifteen metals down to liquid O temperatures; effect of pressure, P. W. Bridgman—587(A)
Homogeneous mechanical stress and electrical resistance of crystals, P. W. Bridgman—858
Tension and electrical resistance of single Bi crystals, M. Allen—848

Electrical oscillations and waves
By beads of corona discharges, J. Tykocinski Tykociner—912(A)

Electric moment (see Dielectric constant)

Electromagnetic theory
Momentum relations in crossed fields, L. Page—101

Electron diffraction
Intensity distribution, H. J. Yearian, K. Lark-Horovitz—905(A)
By an Ag film on an Au crystal, H. E. Farnsworth—588(A)
By a w-single crystal, W. T. Sproull—904(A)

Electron lenses
A correction, C. J. Davisson, C. J. Calbick—580(L)

Electrons
Dirac electron moving in a magnetic field, O. Laporte—340

Electrons, scattering of
Slow electrons by Cs ions, C. Boeckner, F. L. Mohler—906(A)
Theoretical calculations, W. W. Wetzel—902(A)

Electrons, secondary
From collectors in Ne discharge, G. Spiwak, E. Reichrudel—580(L)
Energy distribution of electrons from Mo, L. J. Haworth—906(A)
Magnetic spectra from Ag, S. Chylinski—393

Electro-optical effects (see also Photoelectric effect)
Kerr effect in infrared, L. R. Ingersoll, W. R. Winch—909(A)

e/m
Determination for an electron by a new deflection method, F. G. Dunnington—734(L)
Determination by means of photoelectrons excited by x-rays, G. G. Kretschmar—905(A)
Value of, for electron, R. T. Birge—736(L)

Energy states of atoms (see also Spectra, atomic)
Atomic eigenfunctions and energies, C. W. Ufford, G. H. Shortley—167

Energy states of molecules (see Molecular structure and constants; Spectra, molecular)

Errata
Abundances of N and O isotopes, G. M. Murphy, H. C. Urey—312
Electron lenses, C. J. Davisson, C. J. Calbick—580(L)
Probable values of e, h, e/m and α, R. T. Birge—736(L)
Space quantization of atoms upon impact, H. Kuhn, O. Oldenberg—312
Structure of atomic nuclei, J. W. Bartlett, Jr.—737
Supersonic dispersion and absorption in CO_2, W. H. Pielemeier—436

Ferromagnetism (see Magnetic properties)

Flames
Luminosity of sodium flames, C. D. Child—146(L)

Gases (see Kinetic theory of gases)

Geophysics
Erosion of rock, T. W. Moore—906(A)
Measurement of the gravitational effect of the moon, K. Hartley—911(A)
"Refraction shooting," M. Muskat—910(A)

Gyromagnetization (see Magnetic properties)

Hall effect
And intensity of magnetization, E. M. Pugh, T. W. Lippert—709

Heat of dissociation (see Dissociation)

High voltage tubes and machines
Compact high potential electrostatic generator, H. A. Barton, D. W. Mueller, L. C. Van Atta——901(A)
For producing H ions, M. S. Livingston—441(L)

Hyperfine structure
And isotope displacements, G. Breit—348

Instruments (see Methods and instruments)

Ionization by positive ions (see Ionization potentials)

Ionization potentials
Electron impact in water vapor and sulphur dioxide, H. D. Smyth, D. W. Mueller—902(A)
By impact of atoms and positive ions, C. J. Brasefield—11

Ions, high-speed
H ions, M. S. Livingston—441(L)
Neutralization and ionization of high-velocity ions, by collision, H. F. Batho—753
By repeated accelerations, A. J. Dempster—901(A)

Ions in gases
Ions in crossed fields, L. Page—101
Neutralization and ionization of high-velocity ions by collision, H. F. Batho—753
Radiation from positive ions in A, Ne, He, A. I. McPherson—903(A)

Ions, mobility (see also Ions in gases)
Mobility spectrum in air, R. N. Varney—547
In pure gases, C. M. Focken—577(L)

Isotopes
Abundance of H^2 from spectrum, J. D. Hardy, E. F. Barker, D. M. Dennison—279
Atomic weights, of radioactive substances, F. Western, A. Ruark—903(A)
Detection of $H^2\gamma$ line, D. H. Rank—446(L)
Erratum: Relative abundance of N and O isotopes, G. M. Murphy, H. C. Urey—312
Existence of Cl^{39}, M. F. Ashley, F. A. Jenkins—438(L)
And hyperfine structure, G. Breit—348
Ratio of masses in B, F. A. Jenkins, A. McKellar—464
Vibrational isotope effects in polyatomic molecules, E. O. Salant, J. E. Rosenthal—812
Weight of H^2, K. T. Bainbridge—1

Joule-Thomson effect
In He, J. R. Roebuck, H. Osterberg—912(A)

Kinetic theory of gases
Law of force between two He atoms, W. G. Penney—585(L)

Liquids
Crystalline test bodies in streaming solutions, T. W. Moore—906(A)
Electrical properties of surface layers, K. Lark-Horovitz, J. E. Ferguson—907(A)
Ethyl ether in the region of the critical point, R. D. Spangler—907(A)
Process of liquefaction, G. W. Stewart—907(A)

Luminescence
Of solid nitrogen, J. Kaplan—86

Magnetic properties
Barkhausen effects in rotating fields, F. J. Beck, Jr., L. W. McKeehan—714
Diamagnetism of water at different temperatures, A. P. Wills, G. F. Boeker—687
Of distorted cubic ferromagnetic lattices, F. Bitter—697
Effect of strain in Ni, C. W. Heaps—108
Electric field in paramagnetic crystals, C. J. Gorter—437(L)
Ferromagnetic anisotropy of single crystals; theory, R. M. Bozorth—882
Gyromagnetic ratios for Ni and Co, S. J. Barnett—147(L)
And Hall e.m.f., E. M. Pugh, T. W. Lippert—709
Heisenberg theory of ferromagnetism, D. R. Inglis—442(L)
Magnetic moment of Li^7, L. P. Granath—44
Paramagnetic susceptibility of Cu^{++}, O. M. Jordahl—901(A)
Permeability of Fe at high frequencies, J. B. Hoag, H. Jones—571
Propagation of Barkhausen discontinuities, K. J. Sixtus, L. Tonks—419
Susceptibilities of common gases, G. G. Havens—901(A)
Susceptibilities of salts of Ni, Cr and Co, R. Schlapp, W. G. Penney—666

Magneto-optical effects
Rotation by condenser discharge, F. G. Slack, W. M. Breazeale—305

Magnetostriction
Effect of strain in Ni, C. W. Heaps—108

Mass-spectrograph (see also methods and instruments)
Ionization by electron impact in water vapor and sulphur dioxide, H. D. Smyth, D. W. Mueller—902(A)

Mean life
Of $^3P_2$ Ne atom, E. Matuyama—373
Of 2^3S_1 state of Hg, L. R. Maxwell—148

Measurements (see Methods and instruments)

Mechanics, quantum—atomic structure and spectra
Analytic wave functions, J. C. Slater—33
Atomic eigenfunctions and energies, C. W. Ufford, G. H. Shortley—167
Atomic wave functions, F. W. Brown—914(A)
Quantum defect for highly excited S states of para- and orthohelium, L. P. Smith—176

Mechanics, quantum—general
Continuous electron affinity spectrum of H, C. K. Jen—588(A)
Differential analyzer solution for wave functions, S. Caldwell—589(A)
Dirac electron moving in a magnetic field, O. Laporte—340
Dispersion and absorption of He, J. P. Vinti—632
Effect of exchange on elastic cross sections, P. M. Morse, W. P. Allis—588(A)
Ionization of He by electron impact, W. W. Wetzel—902(A)
Possibility of deriving work from statistical fluctuations, V. Guillemin, Jr.—589(A)
Radiation from slow electrons, L. Nedelsky—641
Scattering of slow electrons, E. Feenberg—17
Susceptibilities of salts of paramagnetic ions, R. Schlapp, W. G. Penney—666
Vapor pressure constant, T. E. Sterne—556

Mechanics, quantum—molecular structure and spectra
Calculation on the water molecule, A. S. Coolidge—189
Continuous absorption of O_2; theory, E. C. G. Stueckelberg—518
Molecules formed from two $2p$ atoms, J. R. Stehn—582(L)
Vibrations of polyatomic molecules; NH_3, N. Rosen, P. M. Morse—210

Metastable atoms and molecules
Lifetime $^3P_2$ Ne atom, E. Matuyama—373

Methods and instruments
Amplifier for Geiger-Müller counters, W. F. Libby—440(L)
Burner for singing flames, J. J. Hopfield—913(A)
Compact high-potential electrostatic generator, H. A. Barton, D. W. Mueller, L. C. Van Atta—901(A)
Comparison of photographic and ionization methods of measuring x-ray intensities, E. Dershem 908(A)
Determination of dielectric constant of a vapor, E. W. Greene, J. W. Williams—119
Differential analyzer solution for the wave function of the K-shell, S. Caldwell—589(A)
Filter for Raman effect, A. H. Pfund—581(L)

Methods and instruments (continued)
High-pressure spectrometer, F. E. Poindexter, L. E. James—910(A)
High-velocity protons by repeated accelerations, A. J. Dempster—901(A)
High-voltage direct-current generator, R. E. Vollrath—298
Magneto-optic rotation, F. G. Slack, W. M. Breazeale—305
Measurement of the gravitational effect of the moon, K. Hartley—911(A)
Modified optical lever, G. A. Fink—912(A)
Non-thermionic amplifier, H. J. Reich—913(A)
Photoelectric quantum counters, G. L. Locher—525
Polarization of electrodes in vacua, A. E. Shaw—902(A)
Refractory materials for melting pure metals, H. B. Wahlin, O. D. Fritsche, J. F. Oesterle—911(A)
Self-recording cosmic-ray electrometer, J. M. Benade—290
Vacuum spectrograph, P. G. Kruger, F. S. Cooper—910(A)
Vacuum tube electrometers, R. E. Burroughs, J. E. Ferguson—913(A)
Vibration of piezoelectric crystals, N. H. Williams—913(A)

Mobility of ions (see Ions, mobility)

Molecular structure and constants (see also Spectra, molecular and Raman spectra)
Energy level diagram of the Sm^{+++} ion in solids, F. H. Spedding, R. S. Bear—76
Of HCN, K. N. Choi, E. F. Barker—777
Molecules formed from two $2p$ atoms, perturbation theory, J. R. Stehn—582(L)
Of NH_3, J. W. Williams, A. Hollaender—379
Of ozone, S. L. Gerhard—622
Vibrations of polyatomic molecules; NH_3, N. Rosen, P. M. Morse—210
Of water molecule, A. S. Coolidge—189

Nuclear spin (see also Hyperfine structure)
Of Li^7, L. P. Granath—44

Nucleus
Disintegration of Li by protons, E. O. Lawrence, M. S. Livingston, M. G. White—150
Masses of atomic nuclei, E. E. Witmer—316(L)
Nuclear exclusion principle, W. D. Harkins—914(A)
Structure of, J. H. Bartlett, Jr.—145(L)

Neutrons
And nuclear structure, W. D. Harkins—914(A)

Optical constants and properties
Change of n with pressure, F. E. Poindexter, L. E. James—910(A)
Dispersion and absorption of He, J. P. Vinti—632

Packing fraction
Of H^2, K. T. Bainbridge—1

Permeability (see Magnetic properties)

Photoelectric effect and properties
e/m of photoelectrons, G. G. Kretschmar—905(A)
Energy distribution of photoelectrons, L. A. DuBridge—905(A)
Quantum counters for visible and ultraviolet light, G. L. Locher—525

Photography
Influence of pressure on latent photographic image, K. A. Maring—911(A)

Photometry
Quantum counters for visible and ultraviolet light, G. L. Locher—525

Piezoelectric effect
Temperature variation of constant of quartz, K. S. Van Dyke—587(A)
Work functions of Mo, L. A. DuBridge, W. W. Roehr—52
X-ray reflection from oscillating crystals, M. Y. Colby, S. Harris—733(L); J. M. Cork—749

Polarization, electrical (see Dielectric constants)

Positive ray analysis (see also Mass-spectrograph)
Ions from heated metals, L. L. Barnes—487

Probability of ionization (see Efficiency of ionization)

Quantum defect
For highly excited S states of para- and ortho-helium, L. P. Smith—176

Radioactivity
Ac branching ratio, F. Western, A. Ruark—903(A)
Atomic weights, Forrest Western, A. Ruark—903(A)
Origin of the Ac series, A. v. Grosse—565

Raman spectra
In CO and NO, S. Bhagavantam—437(L)
Filter for Raman effect, A. H. Pfund—581(L)
Fine structure of a Raman band, J. W. Williams, A. Hollaender—379
Of normal alcohols and organic compounds, R. W. Wood, G. Collins—386
Variation of structure of scattered lines with the frequency, E. Gross, J. Khvostikov—579(L)

Relativity
Experimental establishment of the relativity of time, R. J. Kennedy, E. M. Thorndike—400

Resistance, electrical (see Electrical conductivity and resistance)

Resonance radiation
Absorption coefficient for diffused radiation, M. W. Zemansky—843
Diffusion and escape from a gas, C. Kenty—823

Scattering of electrons (see also Electron diffraction)
Angular distribution in Hg vapor, A. L. Hughes—147(L)
Equations for scattering, E. Feenberg—17

Scattering of light (see also Raman spectra)
From NH_3 solutions, J. W. Williams, A. Hollaender—379

Secondary electrons (see Electrons, secondary)

Solutions
Crystalline test bodies in streaming solutions, T. W. Moore—906(A)

Sound (see Acoustics)

Spectra, absorption (see also Absorption of light)
Coefficients in optically excited mercury, M. L. Pool, S. J. Simmons—909(A)
Conglomerate of $SmCl_3 \cdot 6H_2O$, F. H. Spedding, R. S. Bear—76
Continuous absorption of O_2, theory, E. C. G. Stueckelberg—518
Continuous spectrum of alkyl iodides, Y. Hukumoto—313(L)
Of HCN, infrared, K. N. Choi, E. F. Barker—777
Of IBr, W. G. Brown—355
Infrared of ozone, S. L. Gerhard—622
Intensities at different depths in water, H. A. Erikson—910(A)
Of single crystals of $SmCl_3 \cdot 6H_2O$, F. H. Spedding, R. S. Bear—58

Spectra, atomic
Detection of $H^2\gamma$-line, D. H. Rank—446(L)
Emission probability for a colliding atom, R. W. Ditchburn—314(L)
Extension of spectrum of Cs II, J. Olthoff, R. A. Sawyer—766
Of high speed positive ions in A, Ne and He, A. I. McPherson—903(A)
Of Sb II, R. J. Lang, E. H. Vestine—233
Term system of Ir I, W. Albertson—433(L)
Two vector problem in Pb V and Bi VI, A. T. Goble, J. E. Mack—909(A)

Spectra, general
Auroral spectrum, J. Kaplan—807
B isotopes from band spectra, F. A. Jenkins, A. McKellar—464
Lines from Hg vapor in beam of electrons, L. R. Maxwell—148
Radiation excited by canal ray impact, F. L. Verwiebe—902(A)

Spectra, molecular (see also molecular structure and constants)
Anomalous rotational temperature of HgH, F. F. Rieke—587(A)
Far infrared of HCl and NH^3, J. Strong, S. C. Woo—267
First negative bands of the CO^+, R. F. Schmid—182
Hg bands at 2480A, J. G. Winans—800
Infrared of H^2Cl, J. D. Hardy, E. F. Barker, D. M. Dennison—279
Interpretation of the CO_2 emission bands, R. S. Mulliken—364
Of KH, G. M. Almy, C. D. Hause—242
Of MgO, CaO and SrO, P. C. Mahanti—609
Rotational analysis of ultraviolet bands of SiO, P. G. Saper—498
Vibrational isotope effects in polyatomic molecules, E. O. Salant, J. E. Rosenthal—812

Spectroscopy, technique
Grazing incidence vacuum spectrograph, P. G. Kruger, F. S. Cooper—910(A)

Surface phenomena
Electrical properties of surface layers, K. Lark-Horovitz, J. E. Ferguson—907(A)

Susceptibility, magnetic (see Magnetic properties)

Thermal expansion
Of Sb, P. Hidnert, H. S. Krider—911(A)

Thermionic emission of electrons, emitting surfaces
Work function of Mo, L. A. DuBridge, W. W. Roehr—52

Thermionic emission of positive ions
Of metals from metals, L. L. Barnes—487
Temperature variation of emission from Mo, L. L. Barnes—492

Thermodynamics
Possibility of deriving work from statistical fluctuations, V. Guillemin, Jr.—589(A)
Vapor pressure constant, T. E. Sterne—556

Vacuum tubes
Non-thermionic amplifier, H. J. Reich—913(A)
Vacuum tube electrometer, R. E. Burroughs, J. E. Ferguson—913(A)

Vapor pressure
Vapor pressure constant from quantum mechanics, T. E. Sterne—556

Virial coefficient
Force between two He atoms, W. G. Penney—585(L)

Viscosity
Temperature variation in quartz, K. S. Van Dyke—587(A)

Wave Mechanics (see Mechanics, quantum, etc.)

X-rays, diffraction scattering, reflection and refraction
Diffraction in ethyl ether, F. H. W. Noll—336
Diffuse scattering from a complicated crystal, G. E. M. Jauncey, P. Ehrenfest II—907(A)
Dynamic reflection from ZnS, I. G. Geib, K. Lark-Horovitz—908(A)
Laue patterns from crystals oscillating piezoelectrically, M. Y. Colby, S. Harris—733(L), J. M. Cork—749
L discontinuities of Au, Fred M. Uber, C. G. Patten—229
Scattering of from an NaF crystal at low temperatures, P. S. Williams, G. E. M. Jauncey—907(A)
Scattering by gases and crystals, G. E. M. Jauncey—453
Scattering of hard x-rays by solids, S. Chylinski—153

X-rays, emission
Relative intensities of the $L\alpha_1$ and $L\beta_2$ lines in the fluorescent spectrum of U, R. J. Stephenson—908(A)
Relative intensities of the $L\alpha_1$, β_1, β_2, and γ_1 in Ta, W, Ir and Pt, V. J. Andrew—591

X-rays, spectra and spectroscopy, wave-length measurements
Comparison of photographic and ionization methods of measuring x-ray intensities, E. Dershem—908(A)
Wave-lengths by means of the ruled grating, R. B. Witmer, J. M. Cork—743

X-rays, tubes, apparatus
Demountable metal tube, K. Lark-Horovitz, E. M. Miller—915(A)

Zeeman effect
Perturbed terms in the CO angstrom bands, W. W. Watson—509
Of Sb II and Sb III, J. B. Green, R. A. Loring—909(A)

CURRENT LITERATURE OF PHYSICS

Extracts from the Tables of Contents of Some of our Contemporaries

PROCEEDINGS OF THE ROYAL SOCIETY

SERIES A, VOL. 138, NO. 835 — NOVEMBER 1, 1932

Adsorption. A Study of Availability and Accessibility. By **Sir William B. Hardy and M. Nottage** 259
On Plasticity and Creep in Solids. By **H. Jeffreys** 283
Explosive Oxidation of Carbon Monoxide at Lower Pressures. By **G. Hadman, H. W. Thompson and C. N. Hinshelwood** 297
Lower Pressure Limit in the Chain Reaction between Hydrogen and Oxygen. By **C. N. Hinshelwood and E. A. Moelwyn-Hughes** 311
γ-Rays of Thorium *B* and of Thorium *C* Bodies. By **C. D. Ellis** 318
Theory of Wave Resistance. By **T. H. Havelock** 339
Resistivity of Polycrystalline Wires in Relation to Plastic Deformation, and the Mechanism of Plastic Flow. By **E. N. da C. Andrade and B. Chalmers** 348
Photochemistry of Phosphine. By **H. W. Melville** 374
Bands due to the Hydrogen Molecule: The $2p^3\pi$ Bands of Hydrogen. By **I. Sandeman** 395
Structure of Surface Films. Part XVI.—Surface Potential Measurements on Fatty Acids on Dilute Hydrochloric Acid. By **N. K. Adam and J. B. Harding** 411
On the Surface Potentials of Unimolecular Films. Part IV.—The Effect of the Underlying Solution and Transition Phenomena in the Film. By **J. H. Schulman and A. H. Hughes** 430

NATURE

VOL. 130, NO. 3290 — NOVEMBER 19, 1932

Letters to the Editor:

Limiting Mobilities of Some Monovalent Ions and the Dissociation Constant of Acetic Acid at 25°. By **Duncan A. MacInnes, Theodore Shedlovsky and Lewis G. Longsworth** 774
Emission of Positive Ions from Cold Surfaces under the Influence of Strong Electric Fields. By **W. R. Harper** 775
Origin of Zero-Point Entropy. By **K. Clusius** 775
Eddington's Theory and Physical Constants. By **G. Siva Rama Krishnan** 776
Helium Content of Beryllium. By **Wm. D. Urry** 777

NATURE

VOL. 130, NO. 3291 — NOVEMBER 26, 1932

Letters to the Editor:

Continuous Spectrum of Pure Argon. By **S. P. McCallum, L. Klatzow and J. E. Keyston** 810
Continuous Spectrum of Sodium. By **H. Hamada** 810
Angle of Elevation of Short Wave Rays. By **T. Walmsley** 814

ZEITSCHRIFT FÜR PHYSIK

VOL. 78, NOS. 11 and 12 — OCTOBER 28, 1932

Rule of Mixtures for the Electromagnetic Rotation of the Plane of Polarization. By **Otto Shönrock** 707
Diffraction of Fast Protons by Gold Foils. By **E. Rupp** 722
Optical Transparency of Cu_2O in Relation to its Electric Conductivity. By **G. Mönch** 728
Optical Investigation of the Accommodation Coefficient of Molecular Translation and its Distribution Function in a Rarefied Gas. By **L. S. Ornstein and W. R. v. Wyk** 734

Theory of Super-conductivity. By **R. de L. Kronig** 744
Quantum Mechanical Calculation of the Intensities of Infrared Bands. By **Kurt Scholz** ... 751
Investigation of the Hydrocarbon Band at λ3143. By **Tage Heimer** 771
Experimental Determination of the First Piezo-Modulus of Quartz. By **Berta Nussbaumer** 781
Calculation of Specific Heat of Diatomic Gases by Quantum Statistics. By **C. Gregory** 791
Magneto-Mechanical Effect. By **N. Akulov and E. Kondorsky** 801
Influence of Elastic Stretching on the Form of Magnetization Curve. By **N. Akulov, A. Helfenbein and N. Byczkov** 808
Electrical Conductivity of Oxygen Occluded on Palladium. By **Donald P. Smith** 815
Hypothesis of the Transport of Electricity in Metals by Oxygen. By **Alfred Coehn** 824
Collision Phenomena in Optical Excitation of the Different Mercury Isotopes. By **S. Mrozowski** 826
Remarks on the Mean Life of the Mercury Resonance Line 2537A. By **S. Mrozowski** 844
Theory of Electrical Breakdown. By **L. Landau and L. Rosenkewitsch** 847
Space Charge and Its Relation to the Chemical Components of the Atmosphere. By **R. Stoppel** 849
Appendix to the Paper: Investigations of Hardening of Zinc Aluminum Alloys Having the Composition Al_2Zn_3. By **Herbert Meyer** 854

ZEITSCHRIFT FÜR PHYSIK

VOL. 79, NOS. 1 and 2 NOVEMBER 4, 1932

Hyperfine Structure of the Arc Lines and the Nuclear Moment of Copper. By **Rudolf Ritschl** 1
Sauter's Method of Solution of the Dirac Equation without Specialization of the Operators. By **K. Bechert** 26
Infrared and Raman Bands of Carbon Dioxide, Carbon Oxysulphide and Carbon Disulphide Molecules. By **A. B. D. Cassie and C. R. Bailey** 35
Investigation on the Dispersion of Gases and Vapors and their Representation by the Dispersion Theory. III. Dispersion of Oxygen between 6000 and 1920A. By **R. Ladenburg and G. Wolfsohn** 42
Significance of Ultraviolet Absorption Bands of Alkali Halides. By **M. Born** 62
Absorption Spectra of Highly Compressed Oxygen and Existence of the O_4 Molecule. I. The Ultraviolet Bands between 2900 and 2300A. By **W. Finkelnburg and W. Steiner** . 69
Quenching of Iodine Fluorescence by Magnetic Fields and by Foreign Gases. By **Wolfgang Berg** 89
Procedure for the Separation of Gaseous Isotope Mixtures and Its Application to the Isotopes of Neon. By **G. Hertz** 108
Photometric Investigation of the Strongest Emission Bands of Fluorine. By **Jonaton Aars** 122
Does a Fluid Stick to a Surface which it Does Not Wet? By **Markus Reiner** 139
Reply to the Above Paper of M. Reiner. By **S. Erk** 141

ZEITSCHRIFT FÜR PHYSIK

VOL. 79, NOS. 3 AND 4 NOVEMBER 14, 1932

Semi-classical Theory of Chemical Binding. By **W. Heitler** 143
Occurrence of the Selective Photoelectric Effect on Thin Alkali Metal Films. By **R. Suhrmann and A. Schallamach** 153
N X-Ray Series of the Elements 73Ta-81Tl. I. By **Torsten Magnusson** 161
Molecular Absorption of Mixed Halogen Molecules in Ultraviolet. II. By **H. Cordes and H. Sponer** 170
Temperature Dependence of the Total Ion Formation in Air. By **A. Becker and Ilsemarie Schaper** 186
Change of the Reflecting Power of Bismuth by Magnetization. By **E. Englert and K. Schuster** 194
Heat of Relaxation of the Lead Crystal Grating. By **G. v. Hevesy, W. Seith and A. Keil** .. 197

Magnetic Spectrum of Cosmic Rays. By **Paul Kunze** 203
Hyperfine Structures in the Antimony Spark Spectrum and the Nuclear Moment of the Antimony Isotopes. By **J. S. Badami** 206
Hyperfine Structures in the Antimony Arc Spectrum. By **J. S. Badami** 224
Remark on the Space-Charge Field of Gas-Concentrated Electron Beams. By **K. Engel** ... 231
Singular Vibration Condition of a Flat Spring. By **Johannes Jaumann** 235
Calculation of the Long Wave Limit of the Photoelectric Effect from the Atomic Volumes of the Elements. By **G. Schweikert** 248
Measurement of Small Capacities. By **Hermann Lampe** 254
Ionization by Gamma- and Cosmic Rays in Oxygen and Xenon. Preliminary Communication. By **V. Masuch** 264
Electrical Breakdown as Static Ionization. By **Hanns Eisler** 266

DIE NATURWISSENSCHAFTEN

VOL. 20, NO. 46 NOVEMBER 11, 1932

(No articles of interest to physicists)

DIE NATURWISSENSCHAFTEN

VOL. 20, NO. 47 NOVEMBER 18, 1932

Astigmatism in Grammatical and Technical Aspect. By **M. v. Rohr** 847
Short Original Communications:
Case of Sensitized Phosphorescence. By **Siegfried Rothschild** 850
Significance of Different X-Ray Spectra of Native Starches. By **J. R. Katz and J. C. Derksen** 851

PHYSIKALISCHE ZEITSCHRIFT

VOL. 33, NO. 22 NOVEMBER 15, 1932

Original Communications:
Scattering of Light by Sound Waves. By **P. Debye** 849
Velocity Distribution of Electrons in the Positive Column. By **M. J. Druyvesteyn** 856
Papers and Discussions at the VII German Convocation of Physicists in Bad Nauheim, September 20–24, 1932:
Theory of the Diamagnetism of Conduction Electrons. By **R. Peierls** 864
Dia- and Paramagnetism of Metals. By **E. Vogt** 864
Critical Investigation of the Determination of Paramagnetic Ion Moments in Solids. By **H. Auer** 869
Magnetic Properties of the System Mn-Cu-Al. By **S. Valentiner and G. Becker** 872
Experiment on the Selective Photoeffect and the Optical Absorption on Composite Photoelectric Cathodes. By **W. Kluge** 873
Spectra of Chromium in Crystals. By **O. Deutschbein** 874
Regularities of the Line Spectra of Solids. By **R. Tomaschek** 878
Excitation by Impact of Electrons, Ions and Atoms. By **W. Hanle and K. Larché** 884
Hittorf's Dark Space and the First Cathode Layer of a Glow Discharge. By **W. Weizel** ... 887
Excitation and Emission of Light in a Hydrogen Spark at High Pressure. By **W. Finkelnburg** 888
Investigations of Discharges in Mercury Vapor. By **E. Lübcke** 890
ϵ/μ Measurements with Thread-like Rays. By **K. Siebertz** 895
A New Cathode Examination with the Electrical Electron Microscope. By **E. Brüche and H. Johannson** 898
New Method of Mass-Spectrometry. By **J. Mattauch** 899

ANNALEN DER PHYSIK

VOL. 15, SERIES 5, NO. 2 1932

Electrical and Optical Behavior of Semi-Conductors. VII. Photoelectric Properties of Semi-Conducting Contact Layers. By **W. Lee** 129
Cinematographical Electron Microscopy of Oxide Cathodes. By **E. Brüche and H. Johannson** 145

On Magnetization by Rotation. By **H. Brion** 167
Viscosity, Heat Conductivity and Diffusion in Gas Mixtures. XXI. Absolute Molecular Cross-Section from Viscosity Measurements, Molecular-Theory Significance of the Critical Temperature and Calculation of the Critical Pressure from η. By **Max Trautz** 198
Electrical Properties of Thin Mixed Crystal Alloys. III. Resistance of Copper and Gold Alloys. Regularities in Mixed Crystal Resistances. By **J. O. Linde** 219

PHYSICA

VOL. 12, No. 8 1932

Rôle of Casper Calthoff in the Development of Modern Steam Engines. By **J. A. Vollgraff** 257
Measurement of Specific Gravity of Granular Material. By **W. F. de Jong and H. J. Stek** . 269
Secondary Electrons in X-Ray Tubes. By **A. Bouwers and J. H. van der Tuuk** 274

COMPTES RENDUS

VOL. 195, No. 16 OCTOBER 17, 1932

Calibration of a Blower of Low Velocity. By **Ch. Sadron** 647
Study of the Brownian Movement in a Field of Force. By **Jacques Métadier** 649
Raman Effect in Copper Salt Solutions. By **A. Da Silveira** 652
Mach Effect. By **F. Wolfers** 653
Weakening of the Nuclear Radiation of Beryllium in Screen Materials. By **J. Thibaud and F. Dupré La Tour** 655

COMPTES RENDUS

VOL. 195, No. 17 OCTOBER 24, 1932

New Formulas for the Calculation of Special Perturbations. By **Henri Roure** 694
Longitudinal Equilibrium of a Wing. By **Gustave André Mokrzycki** 697
Cosmic Rays. By **Émile Sevin** 698
Certain Potentials of a Simple Layer, Generators of Real and Complex Harmonic Functions. By **R. Wavre** 701
Novel Isotopic Effect. By **L. Goldstein** 703
Apparatus for Making Glass Instruments for Micro-Manipulations. By **P. de Fonbrune** .. 706
Effect of Molybdates on the Rotatory Power of Xylose. By **E. Darmois and M. Murgier** .. 707

COMPTES RENDUS

VOL. 195, No. 18 NOVEMBER 2, 1932

Measure of the Aerodynamic Characteristics of a Wing Sustained in a Plane Current. By **Henry Girerd** 731
Fundamental Problem Concerning a Wing of Finite Extent. By **M. L. Malavard** 733

REVUE D'OPTIQUE

No. 10 OCTOBER, 1932

Researches on Photoelectric Photometry and Spectra Photometry. By **Pierre Fleury** 385
Electrodeless Discharge and a Source of Monochromatic Light. By **Felix Esclangon** 399
Total Reflection from Half-Silvered Glass. By **Armand de Gramont** 405

NATIONAL ACADEMY OF SCIENCES

VOL. 18, No. 11 NOVEMBER, 1932

(No articles of interest to physicists.)

JOURNAL OF THE OPTICAL SOCIETY OF AMERICA

VOL. 22, No. 12 DECEMBER, 1932

Analytical Treatment of the Longitudinal Horopter; Its Measurement and Application to Related Phenomena, Especially to the Relative Size and Shape of the Ocular Images. By **Kenneth N. Ogle** 665
Accommodation, Pupillary Width and Stimulus Distance. By **Ellis Freeman** 729
Modified Broca Pupillometer. By **Frank K. Moss** 735
Absorption and Dispersion of Celluloid between 300A and 1000A. By **H. M. O'Bryan** ... 739

THE REVIEW OF SCIENTIFIC INSTRUMENTS

NEW SERIES. VOL. 3, NO. 12 DECEMBER, 1932

Measurement of X-Ray Intensities as Functions of Voltage, up to 180 kv. By **D. L. Webster, W. W. Hansen and F. B. Duveneck** 729
Filter for an X-Ray Power Supply. By **J. Barton Hoag and Victor J. Andrew** 750
Mechanical Aid to the Analysis of Complex Spectra. By **George R. Harrison** 753
Note on Rating of Photoelectric Tubes. By **Lewis R. Koller** 760
Mercury Sealed Gas Valve. By **Sanford F. Essig** 762
Variable Orifice Flow Meter. By **Graham W. Marks** 764
Improved Vibrograph and Some of Its Uses. By **T. Tirunarayanachar** 766
Novel Optical Screen for Classroom Demonstrations. By **Joseph H. Howey** 777
Automatic Toëpler Pump. By **Arthur Tandy Williamson** 782
Method for Preparing Crystals for Rotation Photographs. By **H. Kersten and W. Lange** .. 790
Laboratory Apparatus for the Determination of the Time of Free Fall of a Body. By **R. M. Bowie** 792
Photoelectric Emission from Different Metals. By **H. C. Rentschler, D. E. Henry and K. O. Smith** 794
Simple Method of Producing and Projecting Mercury Ripples. By **A. R. Harmon and J. B. Brinsmade** 803
Apparatus for Spectroscopic Studies in the Intermediate Infrared Region 20 to 40μ. By **John Strong** 810